

What is claimed is :

1. Paper feeding device for dot printers, for example for an ink jet photographic printer, said paper feeding device being provided for movement of a sheet in a given direction of printing and comprising :

5 a paper feeding motor, and

a changeover mechanism arranged downstream of said motor and suitable for actuation in response to predetermined operating conditions of the printer to move a sheet to be printed at high speed in a preparation stage and at high resolution in association with printing,

10 wherein the preparation stage includes in sequence sub-stages of feeding and retracting, and

wherein the feeding sub-stage is associated with picking of the sheet from a pack with movement of the sheet in a direction consistent with the direction of printing and the retracting sub-stage includes the movement of the sheet in the direction opposite the direction of printing along an alternative path to the picking path.

2. Device according to claim 1, wherein the preparation stage includes a positioning sub-stage after the retracting sub-stage with movement of the sheet consistent with the direction of printing.

20 3. Device according to claims 1, wherein said changeover mechanism is provided for moving a sheet at high speed in an expulsion stage, subsequent to its being printed, with movement of the sheet consistent with the direction of printing.

4. Paper feeding device for dot printers, for example for a compact, ink jet photographic printer, comprising :

25 a paper feeding motor, and

a changeover mechanism arranged downstream of said motor and suitable for actuation in response to predetermined operating conditions of the printer to move a sheet to be printed at high speed in a preparation stage and at high resolution in association with printing,

5            wherein said paper feeding device comprises an actuating member, positioning of which is servo dependent on the direction of rotation of the paper feeding motor for switching the changeover mechanism between high speed and high resolution.

5.        Device according to claim 4, wherein said actuating member is fulcrum-  
10        mounted on the axis of the feeding motor and is suitable for assuming angular positions associated with a first configuration for movement of the sheet at high speed and with a second configuration for movement of the sheet at high resolution.

6.        Device according to claim 4, further comprising a blocking group for  
15        blocking the position of the actuating member and overriding servo dependency on the above-mentioned direction of rotation and a control group liable for actuation to de-activate said blocking group.

7.        Device according to claim 6, wherein the printer comprises a carriage for  
20        a printhead movable along a printing area, and said control group is servo dependent on the carriage for re-establishing servo control of the actuating member in a working position of the carriage, external to the printing area.

8.        Device according to claim 7, wherein it is applied on an ink jet printer comprising a cleaning station in an end-of-stroke-position, said working position being adjacent to said cleaning station.

9.        Device according to claim 6 , wherein said blocking group comprises  
25        storing elements for storing a setting condition of said blocking group.

**10.** Device according to claim 1 , wherein the retracting sub-stage is started by the feeding sub-stage with activation of the blocking group and inversion of the direction of motion of the paper feeding motor.

**11.** Device according to claim 10 comprising a passage sensor switchable by a sheet in an end-of-picking position , wherein the retracting sub-stage starts with a switching of the passage sensor and terminates with another switching of the sensor upon the sheet passing through the end-of-picking position.

**12.** Device according to claim 2 , wherein the positioning sub-stage is started by the retracting sub-stage with inversion of the direction of motion of the paper feeding motor in association with an activated condition of the blocking group.

**13.** Device according to claim 12 comprising a reference sensor switchable for a reference position of the sheet with respect to the printing area, wherein said positioning sub-stage terminates with a commutation of the reference sensor in the sheet reference position.

**14.** Device according to claim 2, wherein the printing step is started by the positioning sub-stage with de-activation of the blocking group and inversion of the direction of motion of the paper feeding motor.

**15.** Device according to claim 5, wherein said actuating member is suitable for being driven in the direction of rotation of the feeding motor for determining the condition of high speed or high resolution movement and in which said blocking group comprises a stopping member for blocking said actuating member in the first configuration and a removing element that may be actuated render the above-mentioned stopping member inoperative.

**16.** Device according to claim 1, further including a picking mechanism and a clutch suitable for being connected for picking with the paper feeding motor in said feeding sub-stage.

**17.** Device according to claims 7, wherein said clutch is suitable for being actuated by the carriage in a maximum overtravel position and wherein said working position corresponds to an intermediate overtravel position of the above-mentioned carriage.

**18.** Device according to claim 1, further comprising a worm screw and helical wheel coupling which is suitable for being actuated by the above-mentioned changeover mechanism for high resolution movement of the sheet to be printed.

**19.** Paper feeding device for dot printers, for example for an ink jet photographic printer, comprising :

a paper feeding motor ,

a first kinematic linkage associated with said feeding motor for producing high speed sheet movements in a picking and print preparation stage,

a second kinematic linkage associated with said feeding motor and having a transmission ratio different from that of said first kinematic linkage for producing high resolution sheet movements in association with printing, and

an actuating member for putting the first kinematic linkage or the second kinematic linkage into operation,

wherein, for a given direction of rotation of said motor, the second kinematic linkage is suitable for determining a direction of movement of the sheet opposite to that of the first kinematic linkage.

**20.** Device according to claim 19, wherein said actuating member comprises a plate supporting a pair of intermediate tooth wheels meshing with a pinion of said motor and in which said plate is suitable for being driven by said pinion in the direction of rotation of the feeding motor for connecting in the rotation one or the other of the intermediate tooth wheels with the first kinematic linkage or with the second kinematic linkage and for maintaining this connection.

**21.** Device according to claim 20, further comprising a blocking group that is suitable for being actuated to block said plate in a predetermined configuration allowing operativity of the first kinematic linkage for two directions of rotation of the motor.

5 **22.** Paper feeding device for dot printers, for example for an ink jet photographic printer comprising a carriage for a printhead movable along a printing area, said device including a paper feeding motor and a picking mechanism for picking from a pack and feeding one by one the sheets to be printed and further comprising a clutch for operatively connecting said picking  
10 mechanism with the paper feeding motor, linkages for moving the sheet to be printed with different degrees of resolution and a control group servo dependent on the carriage for commanding said clutch and said linkages in different positions of the carriage, outside the printing area.

15 **23.** Paper feeding device for dot printers, for example for an ink jet, photographic printer, said feeding device including a paper feeding motor and a kinematic linkage comprising a worm screw that is suitable for being actuated by said paper feeding motor and a helical wheel for moving a sheet at high resolution in association with printing.

20 **24.** Device according to claim 23, further comprising a support for said worm screw and upon which rotates an intermediate tooth wheel integral in rotation with said worm screw and meshing with a pinion of said motor, wherein said support is suitable for being driven by said pinion in a predetermined direction of rotation of the motor for bringing the worm screw into engagement with the helical wheel and for maintaining this engagement.

25 **25.** Device according to claim 24, further comprising friction means suitable for operating on the whole made up of the worm screw and the intermediate

tooth wheel and having an anti-vibration function in the meshing between said worm screw and said helical wheel.